Subpart B:
Hazard Assessment

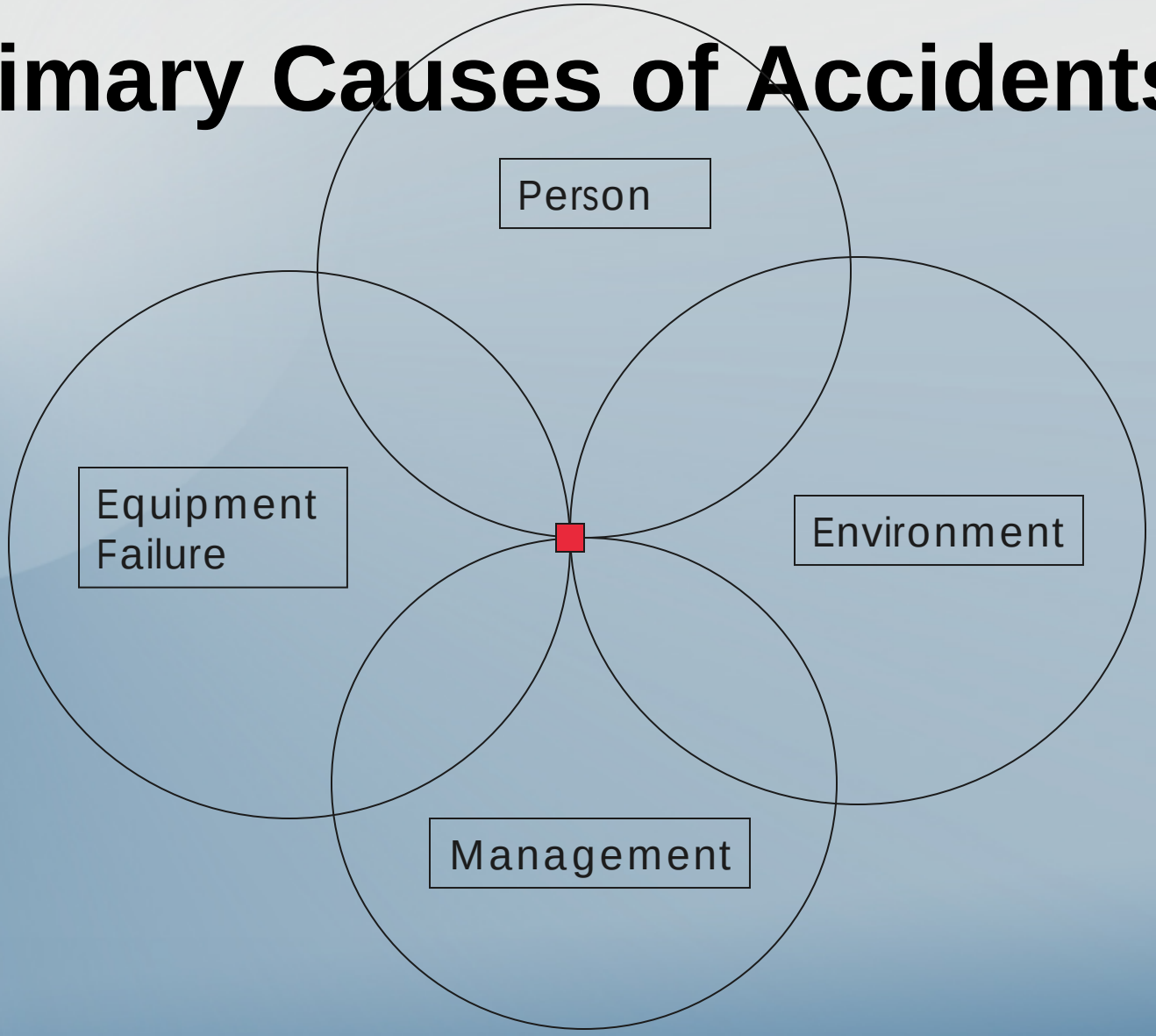
[§§ 68.20-68.42]

Worse Case & Alternative Release Scenarios

Predicting Impact to the Community –

Hazard Assessment

Primary Causes of Accidents



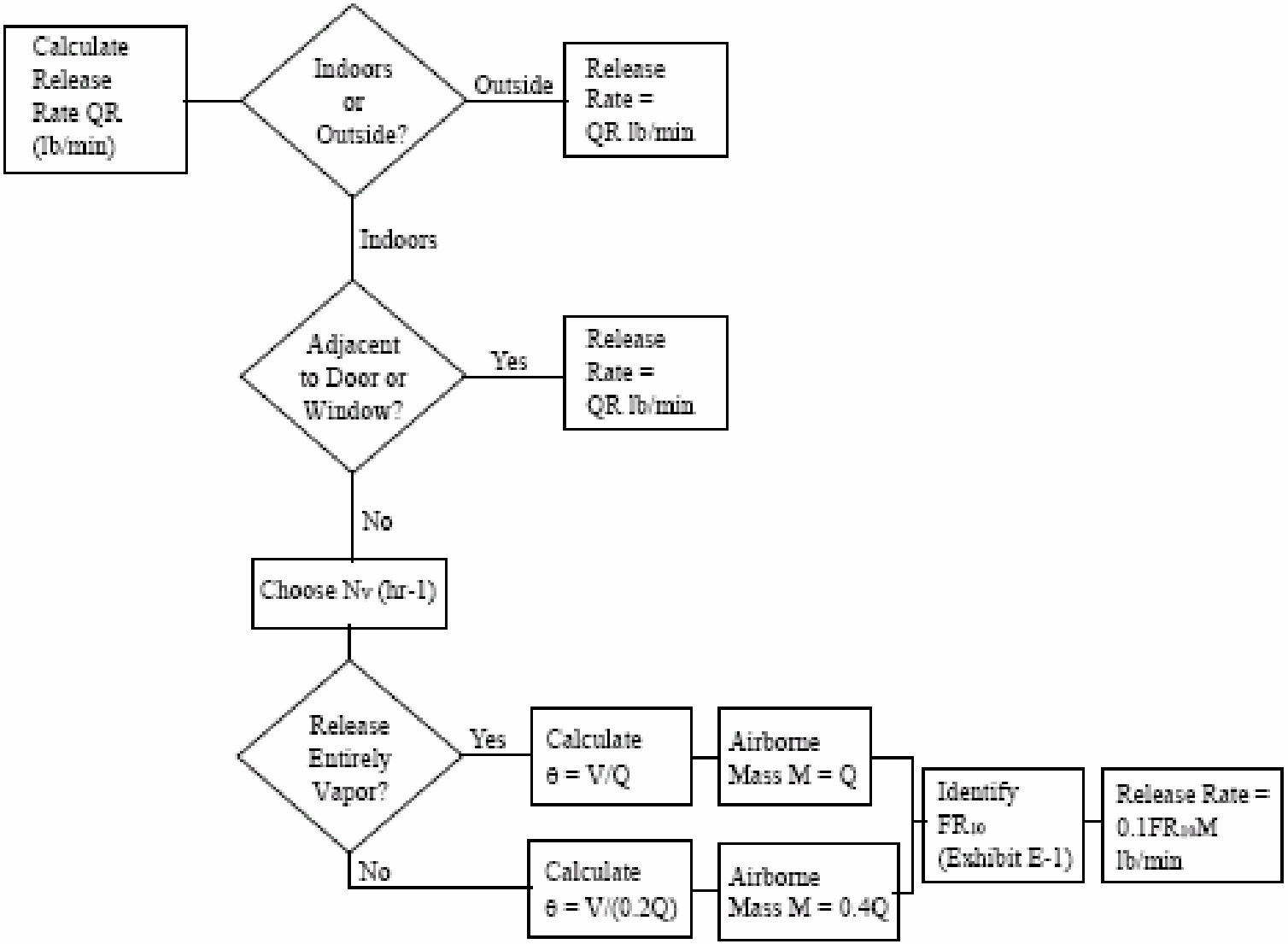
Hazard Assessment

- RMP Requirements:
  - Offsite Consequence Analysis
    - Worse-Case Scenario
    - Alternative Scenario
      - Requires consideration of Failure scenarios identified under § 68.50 or § 68.67
  - 5-year accident history

Offsite Consequence Parameters

- Offsite consequence analysis must include:
  - Toxic end points
  - Flammables
    - Overpressure, Radiant heat, Concentration – lower flammability limit
  - Also consider:
    - Wind speed, stability class, ambient temp, height of release, and topography, Liquid or gas release
    - Passive Mitigation
      - Release within an enclosure.

Effectiveness of Building Mitigation for Alternative Release Scenarios



Scenarios

- RMPs are required to submit two different types of chemical release scenarios:
  - Worse Case
    - Largest vessel releases at one time
  - Alternative Case
    - More realistic release, usually smaller release over longer period of time

Worse-Case Scenarios

- **Program 1 Facilities:**
  - **One worse-case scenario for each Program 1 process**
- **Program 2 and 3 Facilities:**
  - **One worse-case scenario for all toxics**
  - **One worse-case scenario for flammables**
  - **Additional worse-case scenario if different public receptors**

Alternative Release Scenario

- All Program Facilities must:
  - One release scenario for each toxic substance
  - One release scenario for each flammable substance
- Must select a release that is:
  - More likely to occur than worse-case scenario
  - Will reach an offsite impact
  - Consider releases from transfer hoses, piping, pumps, overfilling, spills, or punctures

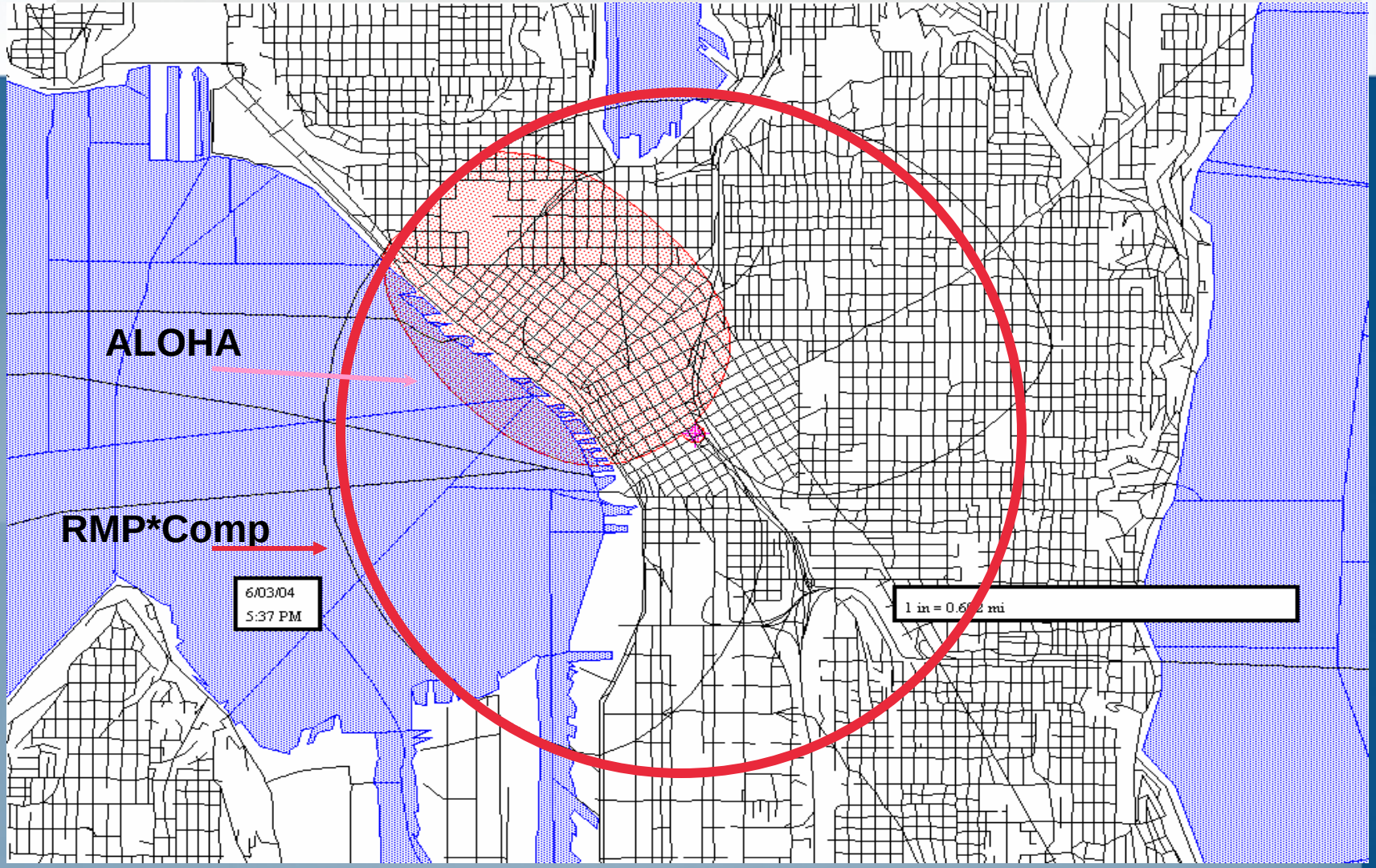
Review and Documentation

- Offsite consequence analysis must be reviewed every five years, or
- Within six months of any process change that could increase or decrease the distance to the end point

Calculating Release Scenarios

- EPA provides a couple of methods to calculate release scenarios:
  - **RMP *Comp** – Computer software, easy to use, need basic data parameters (volume, size of container)
  - **EPA tables** – Found in industry specific EPA guidance documents
  - **Other Models** – Such as *Areal Locations of Hazardous Atmospheres* (ALOHA®)

Distance To End Points

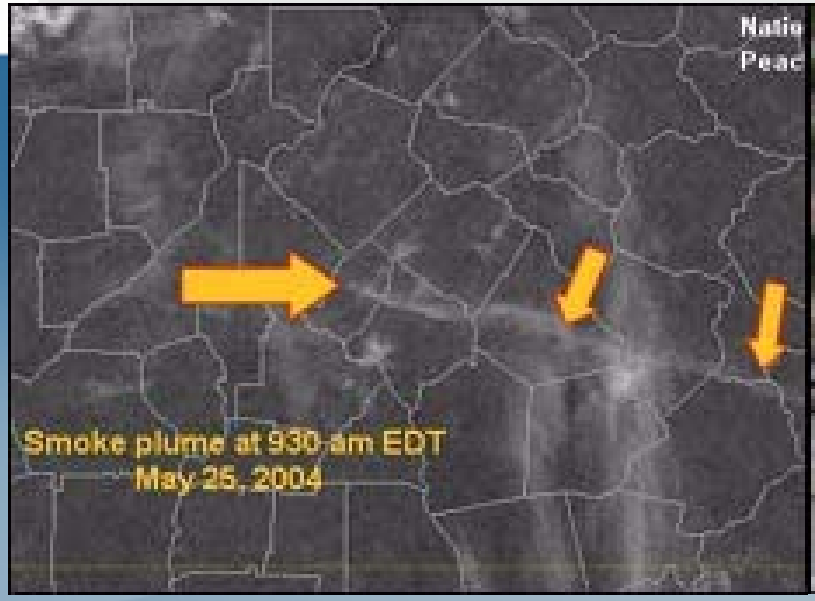


Air dispersion modeling could be used for environmental planning

Release Scenario Analysis

- Since a “zone of concern” can be developed for a given facility based on specific hazardous substances of concern, offsite consequences analyzes can be used to aid in community planning

Worse Case Scenarios



Five-year accident history

- An Accident is Reportable . . . if the release:
  - **Onsite** Deaths, injuries or property damage.
  - [Known] **Offsite** Deaths, injuries, property damage, or environmental damage, evacuations, or sheltering-in-place.
- Requires corrections to the RMP within 6 months. {§ 68.195 *Required Corrections*}
  - Includes data required under §§ 68.168, 68.170(j) [Prgm 2], and 68.175(l) [Prgm 3]